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Coming R&D Budget Crash Evokes a Timid Response

What drew them together was the sound of chain saws coming at research budgets on Capitol Hill. But at the end of a long day of agonizing, it was evident that the victims were not disposed to fight back with anything more potent than a courteous appeal for tender treatment.

That's what came out of the best-attended response yet to Republican moves to reorder federal scientific and technical priorities and budgets—a gathering June 26 in Washington of representatives of 85 S&T and educational organizations affiliated with the American Association for the Advancement of Science.

The uncombative response reflects the scientific community's traditional avoidance of conventional political warfare and the fact that, even in this difficult budget season, non-political pleas for understanding have yielded some favorable results.

From Administration officials and AAAS staff, attendees at the big meeting heard grim reports of Republican plans, with White House Science and Technology Advisor John Gibbons summing up the budget complexities in a one-sentence warning: "The House and Senate are now talking

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about cuts that would wipe out a third of our civilian science and technology investments over the next four years."

What to do about it was the problem of the moment, but the difficulties in coping with it were evident in the very title of the meeting, "Unity Under Adversity," since not all victims are equal under the budget-cutting plans of the reigning Congressional Republicans. Science is to suffer, but the prime political targets in the S&T arena are the technology-oriented industrial assistance programs that have flourished under the Clinton Administration. Denouncing them as "corporate welfare," the Republicans are en route to obliterating the technology programs, while they plan to cut but retain basic research programs, the main concern of the AAAS and its many academic members and affiliated organizations. So, there was an underlying dissonance in trying to cram science and technology under one tent.

Furthermore, with buoyant Republican majorities entering the homestretch in the appropriations process, the save-S&T proceedings were both late and timid—with one quixotic exception to the latter failing: a suggestion that the science community emulate the aggressive and potent Christian Coalition in pursuing its goals through politics.

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House Starts Process of Cutting R&D Spending

The earliest clues to the fiscal future of research are often buried in Congressional appropriations reports, an opaque genre read by few but its victims and the tireless *apparatchiks* of Washington policy analysis.

With the House, as usual, stepping out first, the initial crop of reports mainly contains bad news for research and development. Vice President Gore, meeting on July 11 with the President's Committee of Advisors on Science and Technology, declared that the Republican Congress is cooking up a "train wreck" for R&D. NIH may be an exception, with reports at press time saying its budget will rise to cover inflation. But it's still early in the appropriations game, and anything can change—for better or for worse.

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In Brief

A big fight is shaping up over the future of the US fusion-energy program, which has soaked up some \$15 billion in R&D funds since 1951. A key Presidential panel, chaired by John Holdren, UC Berkeley, reported last week that the program could make good use of an average of \$645 million annually to the year 2002. But, aiming to be "realistic," it said fusion could stay alive with \$320 million a year. The White House has requested \$366 million for 1996; the House Appropriations Committee has recommended \$229 million.

Manufacturing in space has always been a major rationale for the Space Station, but the notion has fallen short in a crucial respect—scant interest on the part of manufacturers. Would a tax sweetener help rouse their interest? Congressional Republicans, strong backers of the Space Station, think so, and are looking into legislating a tax break on profits from production in orbit.

The House has voted to expel the foot in the door so feared by medical psychiatry, a small Pentagon-financed program to train psychologists to prescribe drugs. Initiated in 1987 by Senator Daniel Inouye (D-Hawaii), the program has trained just a few psychologists, at a total cost of \$4 million. The termination vote has brought cheers from the American Psychiatric Association, which says the program was created by an Inouye aide with close ties to the American Psychological Association.

The Board of the American Chemical Society recently voted to create a Task Force on Public Image. The move was taken, according to ACS' Chemical & Engineering News, because of a perception of "a lack of both a clear and compelling vision and a coordinated strategic plan for ACS' public image and relations building."

... Bureau of Mines, Biological Service Abolished

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With a single sentence, the Appropriations Subcommittee for the Department of Interior has decreed a swift, "orderly termination" for one of the oldest research-related agencies in the federal establishment, the Bureau of Mines, founded in 1910. For this purpose, the Subcommittee voted \$87 million for the Bureau—just half of its current annual appropriation—and directed that all the staff be gone by September 30, 1996. The explanation was that the Bureau's budget has been declining in recent years and the "Administration revealed a lack of commitment to the essential functions of the Bureau." The report says Bureau functions should be transferred to other agencies, and its properties to universities and local and state governments.

The Interior Subcommittee also terminated Washington's newest research-related agency, the beleaguered National Biological Service, reviled by conservatives as intruders on private land. But in this case, the Subcommittee explicitly prescribed a transfer of functions—to another Interior agency, the Geological Survey, which apparently has been given a reprieve from prior Republican wipe-out plans. The White House requested \$172 million for the Biological Service, \$10 million more than this year. The Subcommittee allotted \$112 million for the transferred functions, and directed the Geological Survey to confine its biological research to "priority research needs on lands administered by the Interior Bureaus." It also prohibited the use of wildlife-survey volunteers, regarded by some Republicans as conservation nuts.

In harmony with often-repeated Republican vows, the Appropriations Subcommittee for the Commerce Department terminated the Advanced Technology Program (ATP) of the National Institute of Standards and Technology. ATP is the heart and symbol of Clinton's policies for boosting high-tech industry and the White House is trying to mobilize a rescue. But Gingrich and company regard ATP as the essence of "corporate welfare," and are not likely to relent.

NSF came out of the Appropriations process with pretty good numbers, given the fears that abound. NSF's Appropriations Subcommittee approved \$3.16 billion for next year, a mere \$200 million below this year's figure. Count in the effects of inflation, mild as it is, and the purchasing-power is even lower. But NSF officials and their friends knew it could have been worse and they weren't complaining.

Meanwhile, the House Science Committee, which writes the laws but not the checks for NSF, has backed away from earlier plans to abolish NSF's Directorate for Social, Behavioral, and Economic Sciences. They survive within NSF's budget authority, but NSF was directed to drop one of its seven Assistant Directors. The report didn't say which one, but a Committee press release notes that Chairman Robert Walker "recommends" that the SBE Directorate "should be integrated into the other directorates and compete for funds in those programs."

Science at NASA took a bashing from its Appropriations

Subcommittee, the same one that deals with NSF, while NASA's big hardware programs remained untouched. The approved total for the space agency was \$13.54 billion, which is \$837 million below this year's space budget and \$720 million less than Clinton's request, which the space community looked upon as horrifyingly stingy. The Subcommittee provided the full \$2.1 billion requested for the Space Station, the \$3.23 billion for the Space Shuttle, which is the delivery vehicle for the Space Station construction program, \$1.4 billion for the Earth Observing System, and full funding of \$159 million for research on a reusable launch vehicle.

The science programs that paid the price were the Cassini Mission to Saturn, for which the Subcommittee recommended cancellation, along with "delays" in funding for the Stratospheric Observatory for Infrared Astronomy and the Space Infrared Telescope.

The Subcommittee also issued termination orders for three NASA centers, Goddard, Langley, and Marshall. A Subcommittee summary says their functions should go elsewhere, and specifically directs the agency to "transfer the majority of missions" at Langley to NASA's Lewis and Ames Research Centers; Goddard's to the Jet Propulsion Lab, and Marshall's to Stennis, Kennedy, Johnson, and Lewis.

The proposed cuts drew an angry response from NASA chief Dan Goldin. Speaking to the President's Committee of Advisors on Science and Technology, Goldin said NASA couldn't survive further reductions and vowed he would not accept any—"Not a nickel, not a penny." He didn't say what he would do if the cuts are upheld, which seems likely.

At almost the same time Goldin was talking, fax machines around Washington were rolling out a protest from Republican Robert Walker, whose Science Committee includes NASA in its jurisdiction. Walker, an avowed supporter of federal science over technology, protested the Cassini cancellation and the infrared delays, declaring that "NASA's core basic research, which includes planetary exploration and physics and astronomy, should be the first area to be preserved." He also described the directive to close the NASA centers as "premature," noting that Goldin "has outlined a restructuring plan which should be considered before we begin to dismantle operational centers."—DSG

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... A Lone Suggestion to Take the Political Route

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That notion, presented as one among several possibilities by William G. Wells Jr., a George Washington University Professor who is a frequent consultant for the White House Office of Science and Technology Policy (OSTP), marked the outer reaches of potential political activism for the day. It stirred little response, not surprisingly, given the traditional political passivity of the science establishment.

More in keeping with tradition was a limp statement by the AAAS Board of Directors on research and education funding, drafted two days before the meeting, and promptly recognized by the attendees as a weak and virtually meaningless committee effusion. Praising deficit reduction and support for research and education, the AAAS Board statement said Congress should strive for both. The statement concluded up by saying the AAAS Board "encourages the research community to make known its concerns, and to do so with an appreciation of the fundamental unity of the research and education enterprise and an understanding of the importance of congressional concerns about the federal budget."

The statement didn't click with the attendees, members of a gossamer-like alliance of AAAS "affiliates" that totals some 285 organizations, ranging from the National Academy of Sciences to the Poultry Science Association and the Industrial Research Institute. After 10 days of working it over cross-country by fax, out come a "Consensus Statement of the Assembly of Affiliates," which pretty much paralleled the prior expression of support for deficit reduction and science funding.

Shunning direct condemnation of the Capitol Hill wrecking crews, the AAAS organizers focused the meeting on the importance of sticking together. The traditional political technique of helping friends and punishing enemies at election time went unmentioned, except for Wells' reference to adopting the muscular political techniques of religious fundamentalism.

The fear of fraying weighed heavily on the AAAS organizers of "Unity Under Adversity," and the theme was strongly endorsed in talks by Presidential Advisor Gibbons, Neal Lane, Director of the National Science Foundation, and Rita Colwell, President of the AAAS and President of the University of Maryland Biotechnology Institute.

Colwell declared, "We must shoot outward from our circle of wagons rather than inward at each other."

Lane warned against "the frantic behavior of circling the wagons and shooting inward."

Gibbons refrained from joining the wagon train, but did caution that "none of us will get a full meal if we continue to fight each other for table scraps."

These and other references to the importance of unity were unaccompanied by any reports or indications of disunity. Is internecine warfare about to break out? Did the speakers see signs of a coming civil war within the scientific

Persuasion Has Worked

Talking softly without a big stick has often worked in the past when science faced fiscal troubles, but some say times are different now. Nonetheless, even in this dismal season, the gentle approach has achieved some results, though final returns are still to come.

Playing the powerful anti-disease card, the National Institutes of Health was granted a reprieve from the deep cuts originally written into the Republican Budget Resolutions. The National Science Foundation's support of the social, behavioral, and economic sciences was marked for elimination by House Science Chairman Robert Walker. But he backed down after what he described as an unanticipated "fuss." The disciplines apparently will remain alive at NSF, though probably without their own separate directorate. And appeals from industrial and academic friends of the Congressional Office of Technology Assessment have helped keep that targeted agency alive in the House, though cut down by one quarter and attached to the Library of Congress. OTA's final fate is yet to be determined, but it has survived past original expectations.

community or between science and the neighboring technology programs?

SGR addressed this question to Richard Nicholson, Executive Officer of the AAAS. No, he wasn't aware of anything of that sort, he replied. He added that he had heard vague reports that some physicists on the National Science Board, NSF's policymaking body, weren't displeased by Congressional talk about cutting back on NSF support of the social sciences. But he couldn't vouch for those reports. Memories of interdisciplinary squabbling over the ill-fated Superconducting Super Collider might have inspired concerns, he noted, but Nicholson said that was just a speculation.

Why, then, the title "Unity Under Adversity"? Nicholson said it was suggested by a staff member.

NSF Director Lane, asked by SGR whether he had encountered signs of disunity, said, "I don't have any direct evidence that it's happening." His warnings against internal warfare, Lane said, were "intended to be cautionary." He added that "in tough budget times" in the past, he had encountered what he referred to in his AAAS speech as the "discipline defender" mentality." He was concerned at present, Lane told SGR, about scientists trying to protect their budgets by telling Congress that technology programs are distinct from science. Lane alluded to this in his address by warning that "when many segments of the R&D system are embattled by threats of dramatic reduction or outright elimination, we must be careful not to give in to our individual instincts to save ourselves at the cost of others."

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... Science Lacks the Votes, House Aide Asserts

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But Lane said he has "heard no one speak negatively about another science," and he stressed that his remarks were "a preemptive caution."

That's not the case with Presidential Advisor John Gibbons, according to his spokesman Rick Borchelt, who worked for the last Democratic Chairman of what is now the House Science Committee, Rep. George Brown (D-Calif.). "I used to sit in Brown's office and hear the disciplines fight over money," he said, "and we see it here, too," he added.

In a departure from other performances on the platform, a stiff dose of political reality was delivered to the meeting by David Clement, Chief of Staff of the House Science Committee, filling in for Chairman Robert Walker (R-Pa.), whose mother was ill.

Pointing out that "there's no natural constituency for science," Clements added that "it's hard to get 218 votes for science." His talk conveyed the impression that Congressional Republicans will deal favorably with science because it's good for the country and not because of agitation by scientists and their friends.

He did make one concession to political howling, noting the reversal of Republican plans to eliminate NSF support for the social, behavioral, and economic sciences. The targets of those intentions, he said, "were particularly articulate," and were backed up by "a strong pitch" by NSF Director Lane.—DSG

Clinton Meets on R&D Cuts

Congressional cuts in R&D programs were reported to be the main topic last week in a rare meeting between President Clinton and the President's Committee of Advisors on Science and Technology (PCAST). The 19-member Council, drawn from the upper levels of research, academic administration, and high-tech industry, meets infrequently and this was only its second get-together with Clinton, who allotted them 20 minutes, a respectable period in the Presidential scheduling derby.

Keenly interested in publicizing the President's display of interest in R&D economics, the Office of Science and Technology Policy, which administers PCAST sessions, called a post-meeting press conference on the White House lawn. The reportorial turnout was sparse, as were the revelations about the meeting of the President and his Council of wise men and women. PCAST Co-Chairman John Young, former CEO of Hewlett-Packard, said the President and the Council discussed ideas "for explaining the impact [of R&D budget reductions] and educating members of Congress."

Asked whether PCAST would now be lobbying on Capitol Hill in behalf of science, Young replied that "the group has a good competence to help educate Congress about R&D." Former astronaut Sally Ride added, "The President and the Vice President resonate strongly with the importance of R&D."

Copy Christian Coalition

From remarks to the AAAS meeting on "Unity Under Adversity" by William G. Wells Jr., George Washington University Professor and consultant to the Office of Science and Technology Policy.

So what to do? [Among several "general guidelines"], build a coherent alliance among yourselves. Look to other alliances and coalitions as models, particularly the Christian Coalition. With only 1.6 million members but a budget of \$25 million (an average of \$15 per member) and the leadership of an astute Executive Director, Ralph Reed, the Coalition has become one of the most potent political forces in the nation—with easy access to political powers at the national and state levels. The Coalition is organized from a Washington office all the way to the precinct level and is supported by hordes of volunteers who can be activated and energized on short notice. Presidential candidates seek access to the Coalition and Reed's advice—not about religion but about politics. By contrast, and for the most part, the S&T worlds are not even a blip on politicians' radar screens.

Down, Down to Year 2002

The seven-year budget-balancing plan worked out by House and Senate conferees bows toward basic science in preference to technology. But the long-term numbers for achieving a balanced budget by 2002 suggest tough times ahead for science and technology. The Space Station, budgeted under technology, has been declared out of bounds for further cuts, both by the White House and the Republican Congressional leadership, leaving an unresolved puzzle: Where's the money to come from?

Thus, in discussing "budget function 250," which covers science, space, and technology in the National Science Foundation and NASA, the conference report states: "While function 250 must contribute to deficit reduction, the conference agreement recognizes it must also provide for future research opportunities. Consequently, it assumes that basic research will be a priority." In support of this goal, the conferees agreed to the Senate figure of \$113 billion in outlays over seven years, rather than the House recommendation of \$109.6 billion.

But funds for function 250, which received \$17.5 billion this year, are scheduled to begin an annual downward glide next year that will arrive at \$15.2 billion in 2002—without relief for inflation.

The common explanation around Capitol Hill is that while budget cutting fervor is intense at the moment, 2002 is a long way off, and who knows what the mood of Congress and the country will be along the way to that date?

A Lackluster First Hearing on Department of Science

The proposed Department of Science was back on the Congressional stage last month, with its leading advocate, House Science Committee Chairman Robert Walker (R-Pa.), holding his first hearing on the subject. But even with a witness list confined to Department supporters, enthusiasm and conviction were fairly thin.

Politically, departmental creation collides with the Republicans' dedication to government shrinkage via departmental termination. But Walker, while not pushing hard on the issue—he's yet to introduce legislation for setting up a new Department—is keeping the option breathing. More hearings will be held, he said.

Walker's underlying assumption is that if his partymates carry through on their pledges to eliminate the Commerce and Energy Departments, a new homebase will be needed for the departmental research agencies deemed worthy of survival. Joining them, in the Walker formulation, would be the National Science Foundation, the Geological Survey, and research functions of NASA and EPA, plus a few others.

A fact sheet from Walker's Committee tried to dampen concerns about bureaucratic monumentalism and centralized authority in science management by pointing out that the proposed Department would not include defense and health research, "which together account for 67.8 percent of all federal research money. Thus," the fact sheet noted, "the variety of views that keeps American science strong would be maintained."

Taking his turn before the witnesses spoke, former Committee Chairman George Brown (D-Calif.) acknowledged his past endorsement of the Department concept, but Brown said it was late in the legislative season to be taking up the idea. Furthermore, he questioned the motivation for creating the Department, asserting that it "should not be an orphanage for agencies cast adrift as their departments are abolished."

The first witness at the hearing, held June 28, was George A. Keyworth II, who upheld the reputation for outlandish assertion that he established during his tour as White House Science Advisor in the first Reagan Administration. Now Chairman and a Senior Fellow at the Progress and Freedom Foundation, a Gingrich bastion, Keyworth confessed to "having oscillated a few times" over the years on the desirability of creating the Department. But, he explained, "times are much clearer now."

The Department of Science is needed, he said, because R&D spending priorities are obscured by the mass of uncoordinated federal agencies, leading, he said, to a variety of undesirable consequences, including an erosion of public trust in science. This had come about, Keyworth explained, because "we scientists are simply spoiled—the result of too much wealth, acquired too easily, granted more with the accomplishments of our forebears in mind than our own."

Keyworth piled on other alleged sins of science, including bureaucracies dedicated to self-preservation and a misguided

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Do We Really Need It?

A long list of probing questions about the proposed Department of Science has been sent to Congress by an assemblage of 16 research-related organizations, including the American Chemical Society, the Institute of Electrical and Electronics Engineers, the Industrial Research Institute, and the American Psychological Association.

The questions, addressed June 7 to House Science Committee Chairman Robert Walker and Rep. George Brown, the ranking Democratic on the Committee, were not accompanied by any pro or con statement on the Department. And some of the questions were simply neutral requests for information, such as: "What would be the full scope of a Department of Science?" But many of the others provided an impression of skepticism, if not wariness, toward bundling a variety of government research agencies into a new cabinet-level Department. The concept, an old one in Washington, seems to have picked up more support than in the past, but it still arouses a good deal of concern in science-policy circles.

Among the questions: "Would a centralized Department of Science improve the science and technology enterprise in the United States?"

"As national objectives change, how can the research agenda balance political pressures with visionary, long-term science, engineering, and technology that will move the Nation forward?"

"Would the independent agencies, such as NSF, maintain their integrity and independence, or would a central mission objective overtake them?"

"How can the integrity of NSF's research and education programs be maintained?"

So far, there's been no response to the questions—not surprising at this busy stage of the legislative process, which staggers on with staffs sharply reduced as evidence that Republican economy begins at the office.

The signatory organizations are loosely affiliated in a Science and Technology Working Group that has been meeting monthly on policy issues since the beginning of the year. The other organizations that signed the letter to Walker and Brown are the American Geological Institute, American Institute of Biological Sciences, American Institute of Chemical Engineers, American Psychological Society, American Society for Engineering Education, American Society of Microbiology, American Society of Civil Engineers, American Society of Mechanical Engineers' Board on Government Relations, American Society of Plant Physiologists, Association for Women in Science, Computing Research Association, Joint Policy Board for Mathematics, and National Coalition for Advanced Manufacturing.

... Basic Research Comes First, Keyworth Says

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enlistment of basic research in the pursuit of industrial competitiveness. The Department of Science, Keyworth insisted, should focus on promoting academic basic research, which he ranked "above preserving employment in national laboratories, whose missions have largely become secondary to national needs."

The former Presidential Science Advisor spoke disapprovingly of "government-industry partnerships to advance technology for which the government is not the primary customer"—a reference to the Advanced Technology Program of the National Institute of Standards and Technology and the federal-industrial partnership for developing a super-efficient automobile.

Keyworth cautioned Walker's Committee against the advice scientists might offer on the restoration of public confidence in science. "The scientific community," he said, "is likely to be about as helpful as the AARP [American Association of Retired Persons] has been in coping with the rising costs of Medicare."

Rep. Steven Schiff (R-New Mexico), who chairs the Science Subcommittee on Basic Research, said that he had come around to favoring the Department of Science, which would come under Walker's committee. But Schiff expressed hope that jurisdiction over the National Institutes of Health, which now belongs to the Commerce Committee, would be assigned to the Science Committee. Walker responded that he had tried for NIH, but it was "a step too far"—a reference

to NIH and its political friends preferring to stay just where they are in the House committee structure.

Rep. Tim Roemer (D-Indiana) noted the recent opposition to a Department of Science by three former White House Science Advisors: Allan Bromley, who served under Bush; Guy Stever, Ford's Advisor, and Edward E. David Jr., who served Nixon. "They have oscillated," Keyworth said, adding that the creation of the department is "an extremely complicated question, with risks."

Don Ritter, former Republican Congressman from Pennsylvania, now Chairman of the Washington-based National Environmental Policy Institute, ascribed great, if improbable, healing powers to the proposed Department. "Right now," he said, "we depend far too much on teaching assistants who have trouble speaking English and communicating with students. This, after so many billions of dollars in research funding which have effectively changed the way we teach by defining the use of faculty resources. Oversight by a federal science department could make a difference."

W. Henson Moore, a former Congressman who served as Deputy Secretary of DOE in the Bush Administration, also endorsed the Department of Science, saying it would have helped with many problems of priorities and coordination that he encountered at DOE. But Moore, now head of the American Forest and Paper Association, was not optimistic about the prospects. "I wish you luck in this good government endeavor," he told Walker, "as I believe you will find the opponents many and the supporters few."

Job Changes & Appointments

The White House says the President plans to nominate **Ernest J. Moniz**, head of the MIT Physics Department, for Associate Director of the Office of Science and Technology Policy (OSTP), a post vacant since **M.R.C. Greenwood** returned to UC Santa Cruz in May. But these appointments move slowly. Though the announcement of intent was made June 19, the clearance process was still under way last week, and the nomination had not yet arrived in the Senate, where, after arrival, speed on such matters is rare. Moniz drops in now and then at OSTP, but until confirmed, he's still at MIT. **Cathie Woteki** holds the OSTP job on an acting basis.

Harold Liebowitz, upset winner in the election for the presidency of the National Academy of Engineering [SGR, April 15], took office July 1 for a six-year term. Meanwhile, the official candidate of the NAE inner circle, **Cornelius Pings**, is staying on as President of the Association of American Universities, a post he had resigned in expectation of winning the NAE presidency. Incidentally, SGR has been credited with a contributory role in NAE kingmaking for reporting on the NAE election campaign, a rare case of a real contest in a professional society, which was generally ignored in the science press. According to a post-election report in the April 21 *Science*, the Liebowitz candidacy

benefited from "a flattering article in *Science & Government Report*."

Stephen I. Katz, Chief of the Dermatology Branch in the intramural program at the National Cancer Institute, has been appointed Director of the National Institute of Arthritis and Musculoskeletal and Skin Diseases, succeeding Acting Director **Michael Lockshin** and **Lawrence E. Shulman**, the first and founding Director of the Institute.

Thomas J. Kindt, Chief of the Laboratory of Immunogenetics at the National Institute of Allergy and Infectious Diseases, has been appointed Director of the Institute's Division of Intramural Research. He succeeds **John Gallin**, who was appointed Director of the NIH Clinical Center.

Kevin Aylesworth has been appointed a Congressional Fellow of the American Physical Society, which provides for a year as a Congressional staff member, starting in September. Aylesworth, formerly a physics postdoc at the Naval Research Laboratory, is the founder of the Young Scientists' Network, which challenged and helped dispose of the old line about an impending and ruinous shortage of scientists. Aylesworth's tel: 301/527-1677.

Gail Cassell, Chair of the Department of Microbiology at the University of Alabama, has been appointed Chair of the Public and Scientific Affairs Board of the American Society for Microbiology.

In Print

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From the University Press of America:

Soothing the Establishment: The Impact of Foreign-Born Scientists and Engineers on America (184 pp., \$29.50), a provocative analysis by David S. North, a longtime immigration analyst formerly with the US Department of Labor, says the influx of well-qualified foreign-born graduate students, scientists and engineers depresses wages in academe and industry and discourages pursuit of S&E careers by US citizens. The abundance of foreign science and engineering talent, he says, "has made it possible for America to avoid discussing any attempts to steer money away from financiers, industrial managers, and physicians and toward scientists and engineers." Recommended are a series of limitations on stipends for foreign students and restrictions on immigration. North's research was supported by the Alfred P. Sloan Foundation. On June 29, he summarized his study in testimony to the House Judiciary Committee's Subcommittee on Immigration and Claims.

Order from: University Press of America, 4720 Boston Way, Lanham, Maryland 20706; tel. 1-800/462-6420; fax 301/459-2118.

From the National Academy of Sciences, Board on Children and Families, no charge:

New Findings on Children, Families, and Economic Self-Sufficiency: Summary of a Research Briefing (30 pp.), warns that day-care and other services for children are often neglected in the new wave of programs designed to promote the transition from welfare to economic self-sufficiency. In many circumstances, the report says, job-training programs result in lower incomes for welfare recipients and create difficulties in coordinating child care and work schedules. The report was based on a study and workshop supported by the National Institute of Child Health and Human Development, the Foundation for Child Development, and the Carnegie Corporation of New York.

Order from: National Academy of Sciences, Board on Children and Families, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-1935; fax 202/334-3584.

From the Center for the Future of Children, The David and Lucile Packard Foundation, no charge:

The Future of Children: Low Birth Weight (231 pp.), with 14 articles from academe, public health, and medical practice, this is the latest in the three-times-a-year series published by the foundation established by David Packard, co-founder of Hewlett-Packard, and his wife. Previous issues in the publication series, all available without charge, include: *Critical Health Issues for Children and Youth*, *Sexual Abuse of Children*, *Children and Divorce*, and *Adoption*.

Order from: Circulation Department, The David and Lucile Packard Foundation, Center for the Future of Children, 300 Second St, Suite 102, Los Altos, Calif. 94022; tel. 415/948-3696; fax 415/948-6498.

From the Industrial Research Institute (IRI):

Research Technology Management (six times a year; \$50 for individuals; \$90 for organizations; for foreign surface mail, add \$17; airmail, \$38), news and articles on research and development in corporate organizations, published by the Washington-based association of over 260 firms which account for some 80 percent of US industrial R&D. The July-August issue (64 pp.) includes an article on "Measurements and Incentives for Central Research," by Arthur Chester, GM Hughes Electronics Senior Vice President for Research and Technology, and "Revisiting Corporate R&D Spending During a Recession," by Sanjiv Dugal, University of Rhode Island, and Graham Morbey, University of Massachusetts, Amherst, both associate professors of management.

Order from: Industrial Research Institute, Research Technology Management, Suite 1100, 1550 M St. NW, Washington, DC 20005-1708; tel. 202/296-8811; fax 202/776-0756.

From Gale Research, Inc.:

Research Centers Directory: 1996 (two volumes, 2904 pp., \$485), 20th edition of the standard directory of scientific, technical, and many other types of research and scholarly organizations in the US and Canada. The entries, totaling 13,400, cover government, academe, and industry, with each listing providing the full title of the facility, mailing address, organizational connections, phone and fax numbers, name of the head person, staff size, research programs, publications, etc.

International Research Centers Directory: 1994-95 (one volume, 1585 pp., \$430), 7th edition, similar to the above in types of data, covers research in the rest of the world, plus information on international research-related organizations, for a total of 7600 entries.

Order from: Gale Research, Inc., PO Box 33477, Detroit, Michigan 48232-5477; tel. 1-800/877-4253; fax 1-800/414-5043.

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In Print

Official reports and other publications of special interest to the research community

(Copies of publications listed here are available from the indicated sources—not from SGR)

From the General Accounting Office (GAO), no charge:
Department of Energy: Information on DOE's Human Tissue Analysis Work (GAO/RCED-95-109FS; 45 pp.), from DOE archives, summaries of 59 studies of radiation effects on humans, sponsored in the 1950s and 1960s by the ancestral Atomic Energy Commission. All in all, some 15,000 subjects were involved, among them nearly 9000 in a 1950s worldwide collection of fetuses, bone samples, and whole skeletons for monitoring strontium-90 absorption from nuclear-weapons tests. Citing "DOE correspondence," the GAO states that "the agency may have deceived some medical scientists worldwide into believing that it needed the samples to determine the natural radium intake in human beings rather than to determine the strontium-90 uptake from fallout from nuclear weapons testing." Under the heading "Plutonium Injection Cases," the GAO reports the collection in the mid-1940s of tissue samples from biopsy or autopsy "from hospital patients who had been injected with plutonium," noting that the "patients, as a rule, were past 45 years of age and suffering from chronic disorders such that survival for 10 years was highly improbable." The GAO says that "for at least a few of the studies," DOE officials reported "there is little verifiable evidence that the subjects participated with knowledge of the experiment or its risks." But even as many files are opened, candor about rogue science in the early nuclear era remains at risk. The GAO states that the studies discussed in its report "do not technically represent human radiation experiments" and therefore DOE is not including them in a White House-ordered report on, as GAO describes it, "all government-sponsored experiments exposing humans to radiation."

Nutrition Monitoring: Data Serves Many Purposes; Users Recommend Improvements (GAO/PEMD-95-15; 62 pp.), reviews federal programs for monitoring nutrition and lists suggestions collected from health agencies, government organizations, industry, academe, etc. Also available, a GAO report issued in May 1994: **Nutrition Monitoring: Progress in Developing a Coordinated Program** (GAO/PEMD-94-23); another GAO nutrition report is on the way.

Radioactive Waste: Status of Commercial Low-Level Waste Facilities (GAO/RCED-95-67; 72 pp.), finds many plans but no progress in developing new disposal facilities for commercially generated nuclear waste. Noting public opposition to nuclear dumps, the GAO says that risks may be increasing since the closure of some facilities and the exclusion of out-of-state materials at others has forced some waste generators to store their own refuse.

Weapons of Mass Destruction: Reducing the Threat From the Former Soviet Union: An Update (GAO/NSIAD-

SGR Summer Schedule

The next issue of *Science & Government Report* will be published August 15, 1995.

95-165; 78 pp.), reports that after many startup difficulties, significant progress is being made in the US-financed program to destroy nuclear weapons in the former Soviet Union. Less upbeat about progress on chemical weapons, the GAO suggests that Congress withhold further expenditures in this area until the completion of a US-Russian study on "destruction technology." Titled the Cooperative Threat Reduction program, the anti-weapons activities were authorized by Congress in 1991 with a spending ceiling of \$1.25 billion for fiscal 1992-95. The Pentagon says it will ask for another \$735 million for 1996-97.

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20884-6015; tel. 202/512-6000; fax 301/258-4066.

For instructions for receiving a faxed list of titles of the many GAO reports and Congressional testimony issued within the past 30 days: 301/258-4097.

From the National Academy of Sciences, Aeronautics and Space Engineering Board:

Orbital Debris: A Technical Assessment (210 pp., \$39.95, plus \$4 for shipping), warns that space contains some 10,000 pieces of debris of softball size or larger from the 4500 spacecraft launched since the dawn of the space age in 1957. Risks of harmful collisions are currently small but increasing, according to the Academy's Committee on Space Debris, chaired by George Gleghorn, retired Chief Engineer of TRW Space and Technology Group. The report, requested by NASA, calls for data collection and research on the clutter and risks and international development of debris-reduction methods. Paul Shawcross was Study Director for the report.

Order from: National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 1-800/624-6242 or 202/334-3313.

From the Southern Technology Council, of the Southern Growth Policies Board:

Benchmarking University-Industry Technology Transfer in the South: 1993-1994 Data (50 pp., \$10), presents data from the technology-promotion efforts of 40 research universities and medical centers in 14 member states, and concludes that while the rate of home-grown patenting is up, "a significant portion of the economic benefit" is being reaped by private-sector licensees outside the south. The numbers presented suggest, however, that patent-chasing, a popular enterprise in academe today, is a difficult route to riches, given a median in the Council institutions of 1.57 patent applications per \$10 million of research expenditures. Royalty revenues among the 40 institutions ranged from zero to \$6.7 million, with a median of \$305,000.

Order from: Southern Technology Council, 5001 South Miami Blvd., PO Box 12293, Research Triangle Park, North Carolina 27709; tel. 919/941-5145; fax 919/941-5594; e-mail: lgt@encore.ncrcn.net

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